using electronic hospital records. Survival was assessed using the Kaplan-Meier estimator. Recurrence patterns were investigated by type of first recurrence and time-to-recurrence. A multivariate cox regression was used to analyze whether time-to-recurrence was associated with gender, age and tumor thickness. Emigrated patients (n=10) and patients with an unknown recurrence status (n=144) were excluded from the analysis. Of the 1971 patients, 111 (5.6%) had a documented experienced disease progression (median follow-up: 5.5 years). Patients who developed a recurrence had a lower survival compared to patients who did not develop a recurrence (median OS: 9.5 years, maximum: 9.8 years). The time-to-recurrence was not statistically significantly associated with gender (HR=0.81; p=0.29), age (HR=1.01; p=0.38) and tumor thickness (HR=1.11; p=0.76). CONCLUSIONS: Long-term surveillance of stage III prostate cancer patients is of utmost importance, because survival subsequent to recurrence is much lower than expected. The risk of developing a recurrence was substantial; the time-to-recurrence was not associated with gender, age and tumor thickness.

PCN30

EPIDEMIOLOGY OF PATIENTS WITH METASTATIC CASTRATE RESISTANT PROSTATE CANCER IN EUROPE AND AUSTRALIA

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OBJECTIVES: The objective of this study was to evaluate both the incidence of metastatic Castrate Resistant Prostate Cancer (mCRPC) and the number of mCRPC patients who receive specific mCRPC treatments (mCRPCCTT): chemotherapy, androgen suppression, androgen inhibition Hormone Therapies (ADT) manipulations were not included).

METHODS: This study was conducted in 8 European countries and Australia. The incidence of mCRPC patients was assessed using several sources: national cancer registries, published scientific studies and proprietary physician surveys. Analysis of IMS Disease Analyzer™ database was used, focusing on diabetes. The model was validated by comparing projected 5-year prevalence rates to GLOBOCAN 2012 estimates. RESULTS: The model-projected number (found to nearest 100) of incident melanoma cases for 2014 was: Germany=23,100; UK=18,900; France=12,400; Italy=12,000; Spain=5,800. Of incident cases, 11.3%-13.0% were treatment eligible AM. Incidence rates increases of 1.1%-1.6% per year were applied. Analysis of IMSDAR2006 data and review of the literature showed BRAF/PD-1 mutation rates of 45.4%-56.2% and 15.9%-16.7% in AM patients, respectively. Literature-derived, brain metastasis prevalence ranged from 15.9-36.5% in Stage IV patients. Considering case progres- sion, resection and adjuvant treatment rates, the forecasted number of AM patients eligible for 1st and 2nd line treatment in 2018 is, respectively: Germany=3,700 and 1,700; UK=1,100 and 1,400; France=1,800 and 500; Italy=1,800 and 1,300; Spain=1,600 and 500. CONCLUSIONS: While melanoma incidence is projected to increase over the next 5 years the majority of incident cases will be diagnosed in earlier disease stages. Under these assumptions, the largest proportion of the incident melanoma population that is AM patients initiating treatment is expected to be 12% in 2018, a slight decline from 2014.

PCN34

A VALIDATED PREDICTION MODEL AND NOMOGRAM FOR RISK OF RECURRENCE IN EARLY BREAST CANCER PATIENTS

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OBJECTIVES: The objective of this study is to develop and validate a conditional logistic regression model for the prediction of locoregional recurrence (LRB) of breast cancer. To make a translation to clinical practice a web based nomogram was made. METHODS: Women first diagnosed with early breast cancer (without distant metastasis) and who were alive at diagnosis were included. Patients from 2003-2006 were selected from the Netherlands Cancer Registry (n=39,929). Risk factors for LRBs within five year of the primary treatment were determined using logistic regression. Risks were determined per year, conditional on not being diagnosed with recurrence in the previous year. The presence of interaction and collinearity in the nomogram was assessed, as well as the discrimination by means of the area under the ROC curve and calibration by the Hosmer-Lemeshow goodness-of-fit test in different risk groups. A nomogram was developed to predict the 5-year risk of AM patients initiating treatment is expected to be 12% in 2018, a slight decline from 2014.

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SURVIVAL AFTER LOCOREGIONAL RECURRENCE OR SECOND PRIMARY BREAST CANCER: IMPACT OF THE DISEASE-FREE INTERVAL

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OBJECTIVES: The association between the disease-free interval (DFI) and survival after a locoregional recurrence (LRR) or second primary (SP) breast cancer remains unclear. The objective of this study is to clarify this association to obtain more information on expected prognosis. METHODS: Women first diagnosed with early breast cancer between 2003-2006 were selected from the Netherlands Cancer Registry. LRRs and SP tumours within five years of first diagnosis were examined. The figure was performed on 1,666 patients remaining after exclusion of patients with unknown duration. Cox regression analysis was used to explore the association between DFI and survival adjusted for covariates. RESULTS: Adjusted survival was 0.86; medium versus short HR 0.80, 95% CI 0.64-1.00; P for trend 0.01. Other factors related to improved survival after LRR were younger age (<70 years) and surgical removal of the recurrence. No significant association was found between DFI and survival after SP tumours. CONCLUSIONS: This is the first study to explore the association between DFI and survival after recurrence. It is a critical input to cost-effectiveness studies. Data from the Surveillance, Epidemiology, and End Results (SEER) program may provide validation for this study where it is based.

LONG TERM SURVIVAL OF PATIENTS WITH VARIOUS LUNG HISTOLOGY IN THE NETHERLANDS 2004-2011

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OBJECTIVES: Overall survival (OS) data from clinical trials in oncology are often incomplete, thus modelling over the lifetime horizon requires model validation and it is a critical input to cost-effectiveness studies. Data from the Surveillance, Epidemiology, and End Results (SEER) program may provide validation on the long term. OS: The objective was to estimate the parametric functions that best fit data in lung cancer (LC) of various histologies in SEER. METHODS: SEER data (2004-2011) were analysed for patients diagnosed with stage IV small cell, large cell, squamous cell carcinoma and adenocarcinoma of the lung with complete follow-up. Maximum age was 86.03 (sd 11.67) and 55.5% were females, with varying age baseline and gender distribution by histology. Treatment status could not be established. Parametric models for OS were fitted using exponential, Gompertz, loglogistic, log-normal, and Weibull distributions. Models were fitted with and without covariates. Fits were inspected and compared graphically using survival and quantile-quantile plots, and statistically using the Akaike Information Criterion (AIC). Modelled mean life expectancy results were compared to the restricted mean life expectancy of patients alive than estimated with Weibull models.

IMPACT OF HOSPITAL VOLUME ON BREAST CANCER OUTCOME: A POPULATION-BASED STUDY IN THE NETHERLANDS

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OBJECTIVES: To evaluate low-volume, high surgical volume hospital survival is associated with better survival. For high volume tumours like breast cancer this association is unclear. The aim of this study is to determine to what extent the yearly surgical hospital breast cancer volume is associated with overall survival. METHODS: All patients with non-metastatic invasive ductal or metastatic breast cancer in the period 2001-2005, were selected from the Netherlands Cancer Registry. Hospitals were grouped by their (mean) annually surgical volume: <75 cases per year, ≥75 cases per year (mean ± standard deviation) and ≥200 cases per year (mean ± standard deviation). Cox regression analysis was used to estimate patient and tumour characteristics as covariates. Follow-up was completed until the 1st of February 2013. Primary endpoint was 10-year overall survival rate. RESULTS: In total 58,982 patients with invasive non-metastatic breast cancer were diagnosed during the period 2001-2005. Hospital surgical volume had an impact on survival (P=0.0001). Hospital surgical volume <75 (<75 vs ≥200; HR 1.05, 95%CI 1.00-1.11). Hospital surgical volume ≥200 (HR 1.05, 95%CI 1.00-1.11). Age at diagnosis (continuous, HR 0.95, 95%CI 0.95-0.95), socioeconomic status (lowest vs highest, HR 1.12, 95%CI 1.07-1.16), grade (high vs low, HR 1.72, 95%CI 1.65-1.79), tumour size (2-3 cm vs <1 cm, HR 1.46, 95%CI 1.40-1.51), and a higher number of positive lymph nodes (1-3 vs 0, HR 1.40, 95%CI 1.34-1.46) and ≥4 vs 0, HR 3.19, 95%CI 3.00-3.39) influenced death, all to a larger extent than surgical volume did. CONCLUSIONS: In the Netherlands, surgical hospital volume influences 10-year overall survival probability by 3% for each 1% increase in survival.

THE BENEFIT OF HER-2 TARGETED THERAPIES ON OVERALL SURVIVAL OF PATIENTS WITH METASTATIC BREAST CANCER – A SYSTEMATIC REVIEW

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OBJECTIVES: This study was aimed at evaluating the overall survival (OS) gains associated with HER-2 directed therapies in patients with metastatic breast cancer. METHODS: A bibliographic search was conducted in the MEDLINE (PubMed) and the Cochrane Library. Clinical trials databases, from their inception through March, 2014. Only phase III clinical trials (RCTs) including HER-2 positive metastatic breast cancer patients have been included in this review, irrespective of the treatment administered (i.e., chemotherapy, endocrine therapy, and/or hormone therapy). RESULTS: Eighteen trials of HER-2 targeted therapies were included. OS was defined as time from randomisation until the occurrence of death from any cause. Studies have been grouped according to the line of treatment, i.e. first-line or second-line or beyond. RESULTS: OS was improved from 14 months in the first RCT (standard chemotherapy; 95%CI 1.02-1.14). For patients with R/R MCL, patients, largely driven by the significant incremental improvement in duration of PFS. Currently a phase III trial is ongoing, the data from which will be used to validate the model.

THE SIMULATION MODEL OF IBRUTINIB IN TREATMENT OF RELAPSED OR REFRAC TORY MANTLE CELL LYMPHOMA (MCL)

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OBJECTIVES: For patients with relapsed or refractory (R/R) mantle cell lymphoma (MCL), prognosis is poor, with a median survival of one to two years, and treatment options are very limited. The aim of this study was to evaluate the prediction life years (LYs) and quality-adjusted LYs (QALYs) associated with ibrutinib and other treatments for R/R MCL. METHODS: Patients with R/R MCL were simulated to receive treatment in a fixed state, survival and treatment. Patients received ibritinib, bendamustine and rituximab (BR), fludarabine, mitoxantrone, and cyclophosphamide (FMC), temsirolimus, or other comparators until death or until progression of disease, at which point they were modelled to receive the best available or cost-effective salvage. Clinical inputs for ibrutinib were informed by PCYC-1104 trial data. OS was extrapolated to estimate survival outcomes. Clinical inputs for comparators were informed by published literature. Utility values were informed by published studies. Outcomes were discounted by 3.5%. RESULTS: Treatment with ibrutinib resulted in better health outcomes, incrementally increasing overall LYs by 0.92, 0.86, and 0.92 and FMC, and temsirolimus, respectively. Brutinib was associated with 0.71, 0.70, and 0.72 overall incremental QALYs compared to BR, FMC, and temsirolimus, respectively. CONCLUSIONS: Compared with other therapies, ibrutinib yielded an average incremental benefit of 0.91 LYs for R/R MCL patients, largely driven by the significant incremental improvement in duration of PFS. Currently a phase III trial is ongoing, the data from which will be used to validate the model.

SIMULATION MODEL OF IBRUTINIB FOR CHRONIC LYMPHOCYTIC LEUKEMIA (CLL) WITH PRIOR TREATMENT

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OBJECTIVES: Chronic lymphocytic leukaemia (CLL) is a disease of elderly patients with a low disease burden. Despite significant improvements in recent years, treatment with ibrutinib, a Bruton’s tyrosine kinase inhibitor, has been associated with a longer progression-free survival (PFS) for R/R MCL patients, largely driven by the significant incremental improvement in duration of PFS. Currently a phase III trial is ongoing, the data from which will be used to validate the model.